

Application No. 09/924,293
Response to Office Action

Customer No. 01933

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

ALLOWABLE SUBJECT MATTER

The Examiner's indication of the allowability of the subject matter of claims 4, 5, 8, 17, 18 and 21 is respectfully acknowledged.

These claims, however, have not been rewritten in independent form at this time since, as set forth hereinbelow, it is respectfully submitted that their respective parent claims 1 and 14, as amended, now also recite allowable subject matter.

THE CLAIMS

Claim 1 and corresponding method claim 14 has been amended to clarify the features of the present invention whereby at least one columnar electrode is formed over the circuit element-forming region; a plurality of conductive layers are formed on the organic insulating film and electrically connecting at least the connection pads and the at least one columnar electrode arranged over the circuit element-forming region; and at least one thin film passive element including a conductive layer is formed on said insulating film, wherein the conductive layer of the thin film passive element and the plurality of conductive layers are

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laterally arranged and formed by a same layer of the semiconductor device. See Figs. 1, 2A and 2B and the disclosure in the specification at page 14, line 20 to page 15, line 24.

No new matter has been added, and it is respectfully requested that the amendments to claims 1 and 14 be approved and entered.

THE PRIOR ART REJECTION

Claims 1-3, 6, 7, 9-11, 13-16, 19, 20 and 23-25 were rejected under 35 USC 102 or under 35 USC 103 as being anticipated by or obvious in view of USP 6,545,354 ("Aoki et al"). These rejections, however, are respectfully traversed with respect to independent claims 1 and 14 as amended hereinabove.

According to the present invention as recited in amended claim 1 (and corresponding method claim 14), a semiconductor device is provided which comprises a semiconductor substrate including a circuit element-forming region in which an integrated circuit is formed, and a plurality of connection pads; an organic insulating film formed on said circuit element-forming region; a plurality of columnar electrodes which each have an upper edge surface outwardly exposed for connection to an external device, including at least one columnar electrode formed over the circuit element-forming region; a plurality of conductive layers formed on the organic insulating film and electrically connecting at least

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the connection pads and the at least one columnar electrode arranged over the circuit element-forming region; at least one thin film passive element including a conductive layer formed on said insulating film, wherein the conductive layer of the thin film passive element and the plurality of conductive layers are laterally arranged and formed by a same layer of the semiconductor device; and a sealing film which is provided between the columnar electrodes, and which covers the thin film passive element and the semiconductor substrate except for the upper edge surface of each of the columnar electrodes is exposed.

That is, as shown in Fig. 1, a plurality of conductive layers 15 are provided. A plurality of the conductive layers are provided on the organic insulating film so as to electrically connect at least the connection pads and the at least one columnar electrode arranged over the circuit element-forming region (layers 15 on the left and right sides of Fig. 1). In addition, the thin film passive element C comprises a conductive layer 15 (see the center of Fig. 1) which is laterally arranged with the other conductive layers 15 and which is formed by the same layer of the semiconductor device. Thus, according to the present invention as recited in amended claim 1 (and corresponding method claim 14), the same layer of the semiconductor device forms both the plurality of conductive layers which are formed on the insulating

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film to connect the connection pads to the columnar electrodes and a conductive layer of the thin film passive elements.

By contrast, Aoki et al discloses that a re-wiring (conductive layer) 20 is formed on the insulation layer and connection pad 13 to connect the connection pads 13 to the columnar electrodes 21 (see Figs. 1 and 5). In addition, as recognized by the Examiner, Aoki et al discloses that thin film passive elements may be formed on the semiconductor substrate 11. It is respectfully submitted, however, that re-wiring 20, which is formed on the top layer of the insulation film formed on the semiconductor substrate 11, is formed on a layer which is different from the conductive layers of the thin film passive elements. Similarly, Fig. 4A of Aoki et al shows connection pad portions 17 connecting the connection pads 13 to the columnar electrodes 21. In addition, Fig. 4A of Aoki et al shows a conductive layer 61 forming a part of a thin film passive element. However, it is respectfully submitted that layers 17 and 61 of Aoki et al are clearly not formed by a same layer of the semiconductor device.

Thus, it is respectfully submitted that Aoki et al does not disclose, teach or suggest the features of the present invention as recited in claim 1 and corresponding method claim 14 whereby the conductive layer of the thin film passive element and the

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plurality of conductive layers are laterally arranged and formed by a same layer of the semiconductor device.


Accordingly, it is respectfully submitted that the present invention as recited in amended independent claims 1 and 14, and claims 2-11, 13, 15-21 and 23-25 respectively depending therefrom, clearly patentably distinguish over Aoki et al, under 35 USC 102 as well as under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,


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